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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,952

01/22/2004

Robert Vincent

104035-00009

5966

45684

7590

06/24/2009

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EXAMINER

RIGGS II, LARRY D

ART UNIT

PAPER NUMBER

1631

MAIL DATE

DELIVERY MODE

06/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,952	Applicant(s) VINCENT, ROBERT	
	Examiner LARRY D. RIGGS II	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2008 and 02 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 94-111 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 94-111 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's amendments filed 10 October 2008 and 02 March 2009 are acknowledged and entered.

Status of Claims

Claims 20-93 are cancelled. Claims 1-19 and 94-111 are currently pending and under consideration.

Specification

Applicant's amendments to the abstract filed 02 March 2009 are acknowledged and entered. However, the amended abstract is objected to because it is not compliant with 37 CFR 1.121.

An amendment to an abstract is treated like an amendment to the specification. If the changes are minor in nature, submit a replacement abstract with markings to show all changes relative to the immediate prior version. If the abstract is being substantially rewritten, submit a new abstract in clean text (no markings) accompanied by an instruction for the cancellation of the previous abstract. Any new, or replacement, abstract must be submitted on a separate sheet (37 CFR 1.72).

See also "Topic 1: Recent Patent-Related Rule Making and Changes in USPTO Practice Philadelphia IPLA 9/25/03" at the USPTO's website (<http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/textsection2.htm>).

Withdrawn Rejections/Objections

The objection of the disclosure in the Office action mailed 29 April 2008 is withdrawn in view of the amendments filed 10 October 2008 and 02 March 2009.

The objection to claims 94 and 100, in the Office action mailed 29 April 2008 is withdrawn in view of the amendments filed 10 October 2008 and 02 March 2009.

The rejection of claims 1-19 and 94-111 under 35 U.S.C. 112, Second Paragraph, in the Office action mailed 29 April 2008 is withdrawn in view of the amendments filed 10 October 2008 and 02 March 2009.

The rejection of claims 1-19 and 94-111 under 35 U.S.C. 101, in the Office action mailed 29 April 2008 is withdrawn in view of the amendments filed 10 October 2008 and 02 March 2009.

The rejection of claims 1-5, 94, 96, 97, 105, 109 and 110 under 35 U.S.C. 102(a) over Turdukulov in the Office action mailed 29 April 2008 is withdrawn in view of the amendments filed 10 October 2008 and 02 March 2009.

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The instant rejection is newly applied.

Claims 1-19 and 94-111 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The instant claims are drawn to a method of determining the approximate amount of bacteria in water having an actual amount of bacteria therein from light from the water. The instant claims are drawn to the abstract process steps of obtaining measurement of reflected light from water and determining the approximate amount of bacteria in the water by applying an algorithm relating the amount of light at three wavelength ranges to the amount of bacteria in the water.

The Supreme Court has enunciated a definitive test to determine whether a process claim is tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle itself. A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing. See *in re Bilski* 88 USPQ2d 1385 (Fed. Cir. 2008) and *in re Comiskey* 89 USPQ2d 1655 (Fed. Cir. 2009). See also *Benson*, 409 U.S. at 70; *Diehr*, 450 U.S. at 192; see also *Flook*, 437 U.S. at 589 n.9; *Cochrane v. Deener*, 94 U.S. 780, 788 (1876).

The instant claims do not recite or inherently involve any transformation of an article, therefore the Examiner must determine if the instant claims have a tie to a particular machine or apparatus. The instant claims do not recite any limitation that ties the recited abstract process to any particular machine or apparatus.

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Further, it is noted that the instant claims 13, 14, 18, 95, 108 and 111 generate a report. This is considered insignificant post-solution activity. Nominal or token recitations will not suffice, E.g. displaying, inputting, obtaining, See *Ex parte Langemyr* (May 28, 2008). Applicants are cautioned against introduction of new matter in an amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The instant rejection is newly applied with current art of record and new art of record.

Claims 1-5, 94, 96, 97, 105, 109 and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turdukulov (Masters Thesis, International Institute for Geo-

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Information Science and Earth Observation Enschede, The Netherlands), 2003, 1-78 in view of Subramaniam et al. (Deep-Sea Research II, 2002, 49, 107-121).

The instant claims provide a method of determining the approximate amount bacteria in water from light reflected therefrom, comprising the steps of obtaining measurements of reflected light from the water and applying an algorithm relating three wavelength ranges and the light amount to determine the amount of bacteria in the water.

Regarding claims 1, 2, 5, 96, 97 Turdukulov shows measurement of reflected light from water over wavelength ranges of 500-800 nanometers (page 62, Appendix B) and shows organic suspended matter (OSM) concentrations, that includes pathogenic bacteria, such as coliform and E.coli, (page 2, 14, 67, Figures 2.5, D4; Jamieson et al. below).

Regarding claim 3, Turdukulov shows the relationship between total suspended matter (TSM) and volume of reflectance is a linear relationship, wherein $OSM (mg/l) = TSM - ISM$ (inorganic suspended matter), (pages 2, 11-12, Equations 2.1 and 2.2).

Regarding claim 4, Turdukulov shows measurement of reflected light from water over wavelength ranges of 500-800 nanometers (page 62, Appendix B; Thorlabs DET110 silicon detector, below).

Regarding claim 94, 105, 109 and 110, Turdukulov shows measurement of reflected light from water over wavelength ranges of 500-800 nanometers (page 62, Appendix B) and shows organic suspended matter (OSM) concentrations, that includes pathogenic bacteria, such as coliform bacteria, i.e. E.coli, (page 2, 14, 67, Figures 2.5,

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D4), wherein the measurements are obtained by Landsat TM satellite of Dutch lakes, (page 62).

Turdukulov et al. does not show determining an amount of bacteria from the water.

Subramaniam et al. shows a multispectral classification scheme to detect cyanobacterial in satellite data, SeaWiFS imagery, even in waters as optically complex as South Atlantic Bight, (abstract). Subramaniam et al. shows optical modeling incorporating reflectance data at multiple wavelengths and the amount of light detected, (pages 109-110, Table 1), SeaWiFS image data, (page 111) and a classification scheme to determine an amount of cyanobacteria in the water, (pages 116-117; Figures 2 and 4).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to modify the method of quantifying water quality parameters using remote sensing such as imaging spectrometry by Turdukulov et al. by utilizing the optical modeling and classification scheme of Subramaniam et al. because Turdukulov et al. shows the importance of identifying areas of high concentrations of pathogenic bacteria, i.e. coliform and E.coli and quantifying water quality parameters using the spectral characteristics of Landsat TM sensor satellite data, (page v, last paragraph, page 2, last paragraph) and a person of ordinary skill in the art would understand that a method of utilizing satellite imagery and algorithms to determine the amount of cyanobacteria in water could allow one skilled in the art to utilize satellite imagery and algorithms to determine the amount of bacteria in water. Therefore, one of ordinary skill

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in the art would recognize the claimed process as a combination of routine applications that are well known the art that and produce no more than expected results.

Jamieson et al. (Canadian Biosystems Engineering, 2002, 44, 1.1-1.9) shows that *Escherichia coli* is the most common type of fecal coliform and with some strains being pathogenic and posing serious health risks to humans, (page 1.1, right column, second paragraph).

Thorlabs (DET110-High-Speed Silicon Detector), 2002, 1-2, shows that a DET110 High-Speed silicon detector that has a spectral response between 320-1100nm, (page 2).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19 and 94-111 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 7,132,254. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions detect bacteria from light reflected off the surface of water using LANDSSAT TM band 3, 4 and 5 and encompass some of the same frequency ranges.

Claims 1-19 and 94-111 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 18-43 of copending Application No. 11/499288. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions detect bacteria from light reflected off the surface of water using LANDSSAT TM band 3, 4 and 5 and encompass some of the same frequency ranges.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed 10 October 2008 and 02 March 2009 have been fully considered but they are not persuasive.

Applicant's argue that determination of the presence of coliform or E. coli is not an obvious variant of determination of the presence of phycocyanin.

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Applicant's arguments are not persuasive.

Application 11499288 and US Patent 7,132,254 pertain to determining the presence of phycocyanin algae or bacteria in water from light reflected therefrom. Coliform and E.coli are a group and species of bacteria, respectively.

The rejection of claims 1-19 and 94-111 is maintained.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LARRY D. RIGGS II whose telephone number is (571)270-3062. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, ALT. Friday, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LDR/
Larry D. Riggs II
Examiner, Art Unit 1631

/ERIC S. DEJONG/

Primary Examiner, Art Unit 1631